Pattern of Physical Growth and Nutritional Status of Adolescent Girls in Sagar

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Abstract -

The study was conducted among 120 adolescent girls aged between 13 to19 year to draw the pattern of physical growth and their nutritional status. Anthropometric measurement such as height and weight were taken. Increment in growth and body mass index were exercised to estimate the pattern of physical growth and prevalent forms of malnutrition.

Key words - Adolescence, Maluntrition, Poverty, Ignorance, Body mass index.

Introduction -

Adolescence- a period of transition between childhood and adulthood is a significant period of human growth and maturation. The health of adolescents attracted global attention. Poor nutritional status during adolescence is an important determinant of health outcomes. In adolescent girls, short stature that persists into adulthood is associated with increased risk of adverse reproductive outcomes. Girls need special care in view of their role in shaping the health and well being of the present as well as future generations. However, in India, young girls have been sadly neglected and most of them reach adolescence through years of poverty, illiteracy, ignorance and lack of adequate nutrition / health care. Hence the present study was undertaken to study the pattern of physical growth and their nutritional status of adolescent girls.

Material and Methods :

A cross sectional data of adolescent girls aged between 13to19 years was

collected from the school of Sagar. Simple random sampling method was used to draw sample of 120 adolescent girls. Data on socio-demographic variables was collected from questionnaire method. Anthropometric measurement such as height and weight were recorded with the help of anthrop meter rod and weighing machine. Height gives an indication of linear growth. And body weight is used as a significant and reliable indicator of the nutritional status because it depends more on food habits rather than height. In Study the National Center for Health Statistics (NCHS) reference data recommended by WHO was used for a comparative analysis (Rao and Vijayraghavan)[1].

Body Mass Index was used to assess chronic energy deficiency (CED) and various levels of malnutrition.

Result and Disscussion :

Table 1 shows mean values, standard deviation and increment in weight of adolescent girls aged between 13 to 19 years. There was found major variation in comparison NCSH. The highest increment is shown between ages 13 to 14 years. It shows that between ages 13to 14 years girls get maximum weight of the life. In comparison reference value NCHS; weight of adolescent girls was low because of poor nutritional status.

Table 1 - Mean S.D., Increment and NCHS of weight in girls

Age	No	Mean	SD	Increment	NCHS
13	5	38.4	2.05		48.3
14	21	42.42	6.18	4.02	52.1
15	34	40.41	6.63	2.01	55
16	14	42	5.69	1.59	56.4
17	29	42.62	5.15	0.62	60
18	14	42.57	5.88	0.05	63
19	3	51	2.94	8.43	63

Table 2 presents height for adolescent girls at various age levels in comparison to NCHS. It is quite evident that the height of girl is less than NCHS .In study was not a significant difference in the height of different ages of girl. The increase in height relatively takes more time than gain in weight. Longer duration of chronic malnutrition has greater impact of stunting the height where as has comparatively lesser impact on wasting the weight.

·Table 2 - Mean S.D., Increment and NCHS of height in girls

Age	No	Mean	SD	Increment	NCHS
13	5	1.58	0.01		1.59
14	21	1.54	0.01	0.04	1.61
15	34	1.54	0.06	0	1.62
16	14	1.54	0.01	0	1.67
17	29	1.57	0.05	0.03	1.7
18	14	1.53	0.14	0.04	1.72
19	3	1.58	0.04	0.05	1.73

The distribution of BMI and its categories resulting chronic energy deficiency (CED) is shown in table 3.study suggests that 35(29.17%) girls suffer from severe CED. 25(20.83%) were observed as low weight normal and only 12(10%) were observed as normal. Frequency of CED is as high as 60% among girls of 13 years of age (early adolescent).

It is lower for girls of 19 year. It shows that nutritional status among girls is low during pre adolescent phase of growth. Prevalence of CED is the impact of imbalance of energy intake and expenditure.

Table 3 & BMI Classification - BMI distribution among adolescent girls

AGE	NO	<16	16-17	17.1-18.5	18.6-20	20.1-25	25.1-30
13	5	3(60)	2(40)				
14	21	4(19.04)	4(19.04)	5(23.8)	4(19.04)	3(14.28)	1(4.76)
15	34	14(41.17)	5(14.7)	5(14.7)	6(17.64)	4(11.76)	-
16	14	3(21.42)	2(14.28)	4(28.57)	4(28.57)	1(7.14)	-
17	29	7(24.13)	7(24.13)	7(24.13)	7(24.13)	1(3.44)	-
18	14	4(28.57)	1(7.14)	5(35.71)	2(14.28)	2(14.28)	-
19	3	-	-	-	2(66.66)	1(33.33)	-
Total	120	35(29.17)	21(17.5)	26(21.67)	25(20.83)	12 (10)	1 (0.83)

*figures in parentheses shown in percentage.

<16   (CED grade III severe)

16-17   (CED grade II moderate)

17.1-18.5 (CED grade I mild)

18.6-20   (low weight-normal)

20.1-25   (Normal)

25.1-30   (Obese grade I)

>30   (Obese grade II)

In the present study, majority (68.34%) of adolescent girls were underweight, only 0.83% was overweight while 30.83% were normal. Choudhary et al 2 reported 68.52 of adolescents had BMI less than 18.5 kg/square meter in rural area of Varanasi. Shahabuddin et al 3 reported 67.0% prevalence of thinness in Bangladesh. P R Deshmukh et al 4 reported majority (53.8%) of the adolescents were thin in rural Wardha.

In the present study, thinness was significantly higher in early adolescent than in late adolescence. Shahabuddin et al 3 also reported that as age increased, thinness decreased. National Nutrition Monitoring Bureau (NNMB) 5 also reported that under nutrition decreased from 78% in10-13 years to 66% in14-17 years. Chaturvedi et al 6 reported prevalence of chronic energy deficiency to be 93.5%among adolescent girls of rural Rajasthan.

In conclusion, the high incidence of current severe and moderate forms of malnutrition indicates lesser intake of essential nutrients in food, which is associated with their low socio-economic status.

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